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SCHOOL OF GRADUATE STUDIES
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**URBAN ENVIRONMENTAL POLLUTION BY THE CONSTRUCTION INDUSTRIES:
THE CASE OF DUKAM CITY ADMINISTRATION**

BY

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Declaration

I, Jemal Usman Wakeyo, hereby declare that this Thesis is my original work, and has never been presented for degree in any other university, and all sources of materials used in this Thesis has been duly acknowledged and cited.

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Confirmation

This thesis has been done by the student under my supervision, guidance and submitted for examination with my approval as an advisor to the student.

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List of Acronyms and Abbreviations

- FDI..... Foreign Direct Investment
- EIA..... Environmental Impact Assessment
- OEFCCA..... Oromia Environment, Forest and Climate Change Authority
- EFCCC.....Environment, Forest and Climate Change Commission
- EPC..... Environmental Pollution Control
- ONRS..... Oromia National Regional State
- COVID.19..... Coronavirus
- SD..... Sustainable Development
- UNCHE..... United Nations Conference on Human Environment
- FDRE..... Federal Democratic Republic of Ethiopia
- CI..... Construction Industry
- ERs..... Environmental Rights
- PERs..... Procedural Environmental Rights
- UDRH..... Universal Declaration of Human Rights
- ICCPRs..... International Convent on Civil and Political Rights
- MSW..... Municipal Solid Waste
- GTP..... Growth and Transformation Plan
- IP..... Industrial Park
- ESIA..... Environmental Social and Impact Assessment
- WCED..... World Commission on Environment and Development
- UNCED..... United Nations Conference on Environmental Development
- PSIPC..... Provisional Standards for Industrial Pollution Control.
- Art..... Article
- Proc..... Proclamation
- C &D Waste.....Construction and Demolition Waste

Abstract

Construction industry is a fundamental economic sector which permeates the other sectors as it transforms various resources into physical economy and social infrastructure necessary for socio-economic development. The expansions of Construction Industries are more likely to cause environmental pollution to urban center. This Thesis examined enforcement of environmental legal frameworks that relevant to control urban environmental pollution that emanated from construction industries in Dukam city administration at Oromia Regional State.

The study found that the FDRE constitution and other environmental legislations guaranteed all persons have the right to live in a clean and healthy environment is also examined by this thesis whether they are implemented in practice or not. On the other hand, the local residents who live around and close to a place where construction activities underway are discontented with vehicles sound disturbance, noise, dust emission, unpleasant smell and other pollutants that have been released from the sites.

Moreover, this thesis examines that urban environmental pollution by construction industry is accelerated due to absence of meaningful public consultation, lack of integrated environmental laws, lack of specific standards and weak enforcement of mitigation mechanisms to manage expected construction waste at early stage. This study also found out that there is no environmentally sound technology that converts construction and demolition wastes into economic benefit in order to create job opportunities for unemployment citizens.

Municipal administration has a legal duty to manage construction and demolition waste either by itself or get into agreement with construction enterprises that generated construction and demolition wastes to refill solid waste disposal site. Dukam city EFCCA should work out seriously on the enforcement of EIA by giving due attention for vital importance of multi professionals, genuine public participation and strong cooperation of concerned government sectors in order to control pollution released by construction industries to urban environment.

Key words: Urban, Environmental Pollution and Construction Industries

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Construction industry is a fundamental economic sector which permeates most of the other sectors as it transforms various resources into physical economic and social infrastructure necessary for socio-economic development. The physical environment has been affected by construction industries on condition that the construction industry demand natural resources which are largely dependent on the environmental significance with population growth and application for natural resources.¹ The Ethiopian agricultural development led industrialization is the main backbone of industrial development which encourages private sectors to enhance economic growth. The basic businesses in which the private sectors have been engaged in the city include textile industry, leather industry, medical tools and other chemical materials. Moreover, in the Dukam city administration several companies are starting or extending business factories such as ceramic industry, steel factory, pulp and paper industry etc. For all, these businesses, the development of construction industry which is environmentally sound has a great importance.

In Ethiopia, currently huge construction of industries is underway in order to “accelerate the economic transformation and development of the country through the establishment of industrial parks in strategic locations to promote and attract productive domestic and FDI thereby upgrading industries and generate employment opportunity.”² The Industrial Park has objective to achieve planned and systematic development of industries, mitigation of the impact of environmental pollution and development of urban centers.³ As a result, when these construction industries were undertaken urban environmental pollutions were inevitable and cause human health problems.

¹ Ayarkwa, J., Acheampong, A., Hackman, J.K. and Agyekum, K. (2014), Environmental impact of Construction Site Activities in Ghana, Africa Development and Resources Institute Journal, Ghana: Vol.9, No.9(2)

² See the Preamble of Industrial Park Proclamation No.886/2015

³ Ibid

The expansions of construction industries are more likely to raise the environmental damage to urban center due to the emission of pollutants to soil, air and water. The environment is highly prone to the pollution that emanated from the construction industries. The construction activities are not often environmentally sound process. Basically, construction industries greatly contribute to deforestation, noise, particulate matters, soil erosion and physical disruption.⁴

Several construction industries have been situated in the middle of urban settlements and at places where residents were highly populated or densely settled. The dwellers that live around or close to the construction sites have been affected by noise, dust particulate matters and unpleasant smell released from the construction activities like excavation.

The environmental pollution in Ethiopia has a negative health problem which has long term effects on the urban residents due to highly concentrated wastes, unwise use of resources or expansion of construction industries.⁵ In fact, the EIA is not only dealt with physical and biological problems on urban environment, but it addresses social, economic, and cultural conditions to protect pollution released from construction activities. However, in practice socio-economic aspect of the communities living around the construction industries' were not given due attention by Dukam city administration.

Construction industries are among the projects which release more carbon dioxide to the environment. However, the Ethiopian Construction Industry Policy draft has primarily aims at the application of practices, technologies and products which are not harmful to the environment and human health.⁶ This draft of construction industry policy gives more attention to environmentally sustainable and sound practice of technologies by enhancing awareness of residents who live near such industries.

Therefore, researcher examined the regulatory legal frameworks which dealt with urban environmental pollution by construction industries in Dukam town. The researcher also

⁴ Han.Francis L. Kasaila MP, Republic of Malawi National Construction Industry Policy, April 2015, P

⁵Pierre Failler, Patrick Karani and Wondwosen Seide, "Assessment of the Environment Pollution and its impact on the Economic Cooperation and Integration Initiatives of the IGAD Region; National Environment Pollution Report-Ethiopia," P.20

⁶ Ministry of Urban Development and Construction: "Construction Industry Final Policy Draft", July 2012, P.18

analyzes the way EIA is conducted before commencement of construction project by considering its adverse impact on the social and environment.

1.2. Statement of the problem

The construction industry has irreversible impact on the environment across a broad spectrum of its activities during the off-site, on site and operational activities, which alter ecological integrity.⁷ It is more likely to cause urban environmental damage/pollution due to the emission of pollutants to soil, air and water. The urban environment is highly prone to the pollution that emanates from the construction industries like particulate matters and demolishing waste. The construction industries or activities do not always environmentally sound processes and eco-friendly.

There are inefficient regulatory legal frameworks that tackle the problems of environmental pollution by construction industries; which have been detrimental to urban residents' health and social well-being. There are typical types of pollutions like dust particulate matters, sound, light pollution which often released by construction industries.

On the other hand, there was a critical challenge in a way EIA was conducted to curb pollution released by construction industries in Dukam city Administration. Moreover, the EIA do not adequately address the impact of construction industries' pollution on the physical, socio-economic, and cultural aspect of the residents. Additionally, all parties engaged in construction industries do not have the same awareness about damage that construction industries cause to the environment. In addition to aforementioned problems, there were no practice of using environmentally sound technologies which are not harmful to the environment and health of the people in Dukam city.

Therefore, this study is designed to examine enforcement of legal frameworks that exist at the Federal and regional level that used to protect urban environmental pollution released by construction industries in Dukam city administration.

⁷ Simon Ofori Ametepye and Samuel Kwame Ansah, Impacts on the Environment across a broad spectrum of its activities on Environment: Case of Ghana, Journal of Environment and Earth Science, Vol.5, No.3, 2015

1.3. Objective of the Research

The main objective of this research is to examine regulatory legal frameworks that exist at Federal and ONRS level that regulate pollution caused by construction industries to the urban environment.

1.3.1. General Objectives

Objective of this research is to examine legal frameworks and environmental standards that have been used to control urban environmental pollution by construction industries that released to the urban environment. The study also examined laws and practices that exist in Dukam town in line with pollution that released by construction industries to urban environment. In general, this Thesis is aimed at determining whether there are clear standards and guidelines to control pollution released from construction industries.

1.3.2. Specific Objectives

The research has the following specific objectives:-

- To examine regulatory legal frameworks whether there are clear, uniform and specific guidelines to manage pollution released from construction industries in Dukam town.
- To examine implementation of EIA laws to minimize pollution released by construction activities to urban environment in Dukam town.
- To identify responsibility of organs entitled with power to administer construction activities' waste/pollution at Dukam town.
- To examine mechanisms that have been taken by the cities to minimize pollution risk may come from construction industries /project before its commencement in Dukam town.

1.4. Research Questions

1. What are regulatory frameworks that are used to protect urban environmental pollution by Construction Industries?
2. What are legal constraints to control the construction industries pollution in the Dukam town?
3. Do EIA procedures implemented as required by law to control pollution emanate from construction activities in Dukam town?
4. What are mechanisms by which the remains of construction activities are removed from site in Dukam town?

1.5. Ethical Consideration

To conduct research on the approved title, kind collaboration of concerned officials, experts, residents and stakeholders are found to be very essential to get relevant information and data for the thesis. Thus, in the course of data gathering mechanism, sensitive issues kept confidential in order to protect subjects, from whom data obtained. The key informants were informed that they have the right to cooperate for the purpose of the research or not. The respondents and officials were also informed about the aims of the study.

1.6. Literature Review

Many literatures show that construction industries can have direct and indirect health effects on workers, and residents of the construction sites.⁸ The construction industry has irreversible impact on the environment across a broad spectrum of its activities during the off-site, on site and operational activities, which alter ecological integrity.⁹ According to Simon and Samuel the off-site, on site and operational activities have capacity to disturb environmental ecological balance when construction industries underway.¹⁰

⁸ J.Ayarkwa, .Acheampong, A.,Hackman et al.(n1 above), P.4

⁹ Simon Ofori Ametepey and Samuel Kwame Ansah(n7above)

¹⁰ Ibid

These indicate that unless construction pollution managed properly, it would affect urban environmental sustainability. The researchers on the area stated that construction industry is one of the major exploiters of renewable and non-renewable natural resources.¹¹ Therefore, huge construction industries that underway near the cities or in the urban centers have adverse social and health impacts on the residents. The other researcher stated that “the construction industry’s environmental impacts under the categories of ecology, landscape, traffic, water, energy, timber consumption, noise, dust, sewage, health and safety hazards.”¹² These imply that construction industries are major contributor of air, noise, waste and water pollution which have adverse impact on the urban environment.

The off-site activities are involved issues of mining and manufacturing materials and components, transportation materials and components, land acquisition and project designs.¹³ Mostly onsite construction activities are connected to the construction of a physical facility, which resulted in air, water, and waste pollution.

On a global scale, the construction industry is responsible for about 50% of CO₂ emitted into the atmosphere, 20-50% of all natural resources consumed and 50% of all solid waste produced during building was under construction phase, which cause many environmental impacts.¹⁴ The Construction industry considered as a pillar of economic development which has a great contribution to the national economy.

With regardless of its national economic importance, construction industry releases particulate matters in course of construction which affect health of residents.¹⁵ In general, some researchers recommended that the application of environmental assessment and environmental management system to deal with environmental issues in construction industry.

¹¹ Ibid

¹² L.Y.Shen and V.W.Y.Tam, “International Journal of Project Management” (2002), P. 535-543;

¹³ *Ibid*

¹⁴Thomas, N.I.R.; COSTA.D.B, Adoption of Environmental Practices on Construction Sites, Ambiente Construido,Porto Alegre, V.17, No.4, P.10

¹⁵ Geng Zhang, Construction Project working Site of Environmental Pollution and Counter Measure, International Forum on Energy, Environment science and Materials IFEESM (2015)

1.7. Research Methodology and Method

The researcher used mainly qualitative doctrinal legal methodology to examine urban environmental pollution by construction industries.

1.7.1. Research Approach and Techniques

To conduct the study qualitative data collection techniques are mainly used as basic data collection and analyzing method. The Primary data collection method is used to collect data in the form of questionnaires, interviews and focus group discussion. Sectors consulted for this research at Dukam town include Dukam Construction Authority, Dukam Environment, Forest and Climate Change Authority and Municipal Office.

At ONRS, specifically Oromia Urban Development and Housing Bureau, Environment, Forest and Climate Change Authority will be consulted about the impact of construction industries pollution on the urban environment.

Secondary Data Collection Method: The researcher used the relevant literature review as secondary sources for this study. Legal documents, journals, books, legislations, guidelines and standards have been consulted and reviewed by researcher to examine enforceability of environmental laws that exist at the federal and regional level to protect pollution released to urban environment.

The researcher can conduct personal observation to the research site selected for case study and deploy questionnaires to relevant participants.

1.8. Significance of the Study

This Thesis will help the government to re-examine its regulatory frameworks in relation to construction industries to strength the use of sustainable and environmentally sound practices both at the Federal and Regional level. The thesis will be vital for policy makers to promote enforcement of sustainable practice that are environmentally sound regarding the construction industries' pollutions to environment. It does also encourage potential researchers and stakeholders to conduct further study on the subject matter to get adequate understanding about the pollution discharged from construction activities to urban Environment.

1.9. Limitation of the Study

Conducting research is not an easy task for researcher. While conducting the research, researcher faced with some major challenges.

- Official were not interested in providing project document that show whether EIA was conducted or not, rather they interested in giving general highlight about the project.
- Specially, experts were not willing to fill questionnaires presented to them by researcher.
- The key informants were not ready to take sufficient time to discuss matters with researcher due to their scheduled time and official tasks.
- It was found to be difficult to obtain documents and information due to bureaucratic character of concerned administrative bodies.
- It was found so difficult to get organized data that would assist the researcher's findings.
- Specially, sometime residents were not interested in providing interview concerning about any project that may cause environmental pollution in their vicinity, they prefer to keep silent.
- COVID 19 is also a limit to freely interact with respondents for researcher.

1.10. Scope of the Study

This study is conducted on the Urban Environmental Pollution by the Construction Industries particularly in Dukam City Administration at Oromia National Regional State. This study examines legal frameworks exist at the Federal and regional level that used to protect environmental pollution emanated by construction industries in Dukam City Administration. Furthermore, the government institutions and stakeholders those work on the environment can be consulted.

1.11. Thesis Organization

The thesis is arranged in five chapters. The first chapter deals with introductory part of the study. The second chapter addresses definition of the environment and Scope of Environmental rights, substantive environmental rights and procedural environmental rights. Third chapter deals with the concept of construction in industry, expansion of construction industries in Ethiopia, types of environmental pollution by construction activities and Federal environmental legal regimes. The fourth chapter deals with discussion and findings that attributed to the problems of urban environmental pollution by construction industries in Dukam city Administration. The final chapter is conclusion and recommendation.

CHAPTER TWO

2. DEFINITION OF THE ENVIRONMENT AND SCOPE OF ENVIRONMENTAL RIGHTS

2.1. General Overview

The global environment has gradually deteriorated at alarming degree that can negatively damage the natural resources base and processes upon which all life depends. The biosphere becomes incapable of sustaining human life unless tough and multifaceted action is taken by every person and all stakeholders.¹⁶ All human activities have a significant impact on the environment and certainly each individual has an “environmental foot print” that represents the sum of that person’s resources use and contribution to pollution.¹⁷

The environment is widely accepted by many scholars as the cumulative of natural, social and cultural conditions that have impact on the life of an individual or community. Thus, the environmental problems can involve problems like traffic congestion, waste pollutions, air, water, and noises from various sources.

The Rio de Janeiro meeting from 3-14 June 1992 clearly stated there is an extensive absence of awareness of the interrelated nature of human activities and the environment, since there is no accurate or adequate information.¹⁸ There is no adequate public awareness to protect the environment from damage that arises from human activities due to their poor understanding of environmental management. Moreover, to tackle intensive problems of the environment, it is necessary to increase public sensitivity to the environment to take part in the solutions and develop a sense of environmental responsiveness and protection in higher moral motivation and commitment.¹⁹

¹⁶ Shelton and Kiss (2005), “*Judicial Hand Book on Environmental UNEP*” P.1

¹⁷ Ibid

¹⁸ The Rio Declaration on Environment and Development, in Report of the United Nations Conference on Environment and Development, A/CONF.151/26 Rev1, (Vol. I), 3-14 June 1992

¹⁹ Ibid

Rio de Janeiro principle 1 stated that “human beings are at the center of concern for sustainable development. They are entitled to a healthy and productive life in harmony with nature.”²⁰ This basic principle reveals that human activities have strong interconnection with human environment and sustainable development (SD). Human activities play a great role to damage environment in the pretext of development. Certainly, the environment, development and human being were interdependent; none of them achieve their goal alone from one another or independently.

Declaration of the UNCHE is stated that “to achieve environmental goal will demand the acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts.”²¹ Individuals’ life experience and organizations in many fields, by their values and actions will change the global environment in which human being live. According to this principle every individual and organizations have to take responsibility for their actions in all courses of life to maintain equilibrium that exists between natural environment and human activities on the physical environment which has been undertaken in the pretext of sustainable development.

Specifically, Ethiopian environmental protection legal regimes have different policies such as, Ethiopian Environmental Policy, Health Policy, Population Policy and Final Draft of Construction Industry Policy and other environmental legislative frameworks were enacted. At a national level the 1995 FDRE Constitution was enacted with broad environmental objectives that embrace the basic and comprehensive principles and guidelines for environmental protection and management. Among these basic principles, the FDRE constitution 1995 clearly incorporated that, “*the government shall endeavor to ensure that all Ethiopians live in a clean and health environment.*”²² According to these basic principles, the government has duty to protect environment from the activities that pollute or damage environment in the course of any development. On the other hand, environmental objective has been mentioned in the constitution

²⁰ Ibid Principle 1 P.3

²¹ Declaration of the UNCHE(1972)

²² The FDRE Constitution Art.92

as “the design and implementation of programs and projects of development should not damage or destroy the environment.”²³

Desalegn examine that the FDRE Constitution incorporated the basic pillars of environmental rights that are common to civil and common law legal systems such as, the right to live in a clean and healthy environment, the right to information, the right to participation in environmental issues and the right to access to environmental justice.²⁴ These principles directly included into subsidiary environmental protection laws of Ethiopia both at the federal and regional agencies.

Recently, Ministry of Urban Development and Construction has articulated the Final Draft of Construction Industry Policy that promotes enforcement of sustainable construction practice, which is environmentally sound or eco-friendly. The policy vividly stated that the Construction Industry (CI) is generally accepted or acknowledged for its significance in terms of economic development contribution, but at the same time it can be considered as the major cause of environmental damage and occupational health problems.²⁵ This policy envisages that construction activities have potential impact on environment in different way by deteriorating resource, noise, physical disruption, etc. In construction industry regardless of the environmental pollution, great attention was given to the occupational health hazardous to the workers specifically.

Now day CI is one of the greatest pillars of economic development both at the international and national level. Although, the construction industry has brought a positive opportunity for the development of the national economies, it produces a considerable amount of pollutants in the course of construction.²⁶ Therefore, construction industries released pollutions to the urban environment at the construction phase and operation, which have great impact on the quality of life and seriously harms ecological environment.

²³ Ibid Art.2

²⁴Desalegn Amsalu (2018), Environmental rights in Ethiopia: “Shifting from theoretical to practical realization”, P.52

²⁵Construction Industry Policy (n 6 above)

²⁶Geng Zhang (n15 above)

2.2. Definition of The Environment

There is no comprehensive and universal definition of the word environment that globally accepted as single and uniform meaning for all. Many literatures define it in different way. There is no standard and uniform definition of the environment in international law that will be applied in all circumstances. In the framework of the Council of European (COE), the Convention on the Civil Liability for Damage Resulting from Activities Dangerous to the environment endeavors to define the concept of “environment”:

“Environment includes natural resources both abiotic and biotic, such as air, water, soil, fauna and flora and interaction between the same factors; property which forms of the cultural heritage, and the characteristics of landscapes.”²⁷

In addition, the International Court of Justice (ICJ) has attempted to define the notion in its Advisory opinion on the Threat or Use of Nuclear Weapons: It held that “the environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn.”²⁸

Federal Environmental pollution Control defines “Environment” as:

“the totality of all materials whether in their nature state or modified or changed by humans, their external spaces and the interactions which affects their quality or quantity and the welfare of human or other living beings, including but not restricted to, land, atmosphere, weather and climate, water, living things, sound, odor, taste, social factors and aesthetics.”²⁹

Almost all the Environmental legislations of Federal government and regionals are defined the environment in the same fashions as it described in the Proclamation of Environmental pollution Control No.300/2002.

²⁷ “*Manual on Human Rights and the Environment*”, Council for Europe 1st eds (2006) and 2nd (2012) eds, P.134

²⁸ Ibid

²⁹ Environmental Pollution Control Proclamation No.300/2002, Negarit Gazeta 9th year, No.12, Addis Ababa 3rd December 2002 Art.2(6)

It is also defined as “a complex of natural and anthropogenic factors and elements that are mutually interrelated and affected the ecological equilibrium and the quality of life, human health, the cultural and historical heritage and landscape.”³⁰

The UK Environmental Protection Act 1990 Up to date of 31st March 2015 has described the “Environment” as follow:

*“The environment consists of all, or any, of the following media, namely the air, water and land, and the medium of air includes the air within buildings and the air within other natural or man-made structures above or below ground.”*³¹

On the other hand, some scholars define it from different angles under different circumstances by taking into consideration the broadness of environmental concept and its strong linkage with human beings and other natural things such as development. For instances, Boring is precisely defined the environment as “a person’s environment consists of the sum total of the stimulation which he receives from conception until his death.”³² He concluded that ‘environment’ is the sum total of all the external forces, influences and conditions, which affect the life, nature, behaviors and the growth, development and maturation of living organisms.³³ Furthermore, writers like James R.May and Erin Daly are also describing the meaning of the environment in this way:

*“The environment...is everything which is naturally surrounds us and that permits the development of life, and it refers to the atmosphere as it does to the land and its waters, to the flora and fauna, all of which comprise nature, with its ecological systems of balance between organisms and the environment in which they live.”*³⁴

³⁰ Shelton and Kiss (n16 above), P.4

³¹ UK Environmental Protection Act 1990 Up to date as of 31st March 2015, Sect. 1(2).

³²See “Environmental Science: Definition, Scope and Importance”, P.2

<<http://www.tezu.ernet.in/denvsc/IDC/Study%20material%20Unit%201.pdf>> accessed on January 2/2021

³³ Ibid

³⁴ James R.May and Erin Daly (2017), “Judicial Handbook on Environmental Constitutionalism”, P.162

In general, since there is no universal accepted definition of the term environment, it is important to bear in mind that there is various definitions of the environment, but the commonly accepted definition includes comprehensive elements such as air, water, land, flora and fauna as well as human health and safety and it is to be protected as part of sensitive global goal of ensuring sustainable development.

2.3. The Scope of Environmental Rights

Environmental rights (ERs) suffered from definitional ambiguity and vagueness which are the first objections that are raised against the adoption of the right to environment.³⁵ Constitutions of many countries include the term like ‘healthy’, ‘decent’, ‘clean’, ‘ecologically balanced’, ‘safe’, and ‘sound’ commonly used to describe the desired quality of the environment.³⁶ Most of the aforementioned adjectives are ill-defined to be justiciable in reality when the right to healthy environment is in questions. The most frequently used formulation is the ‘right to a healthy environment’ and those who use it believes that the term ‘healthy’ is sufficiently versatile to be used to describe all environmental ills. However, right to health environment in practice does not free from environmental problems altogether because there is a compelling economic interest which an inevitable effect on the ecology.

Furthermore, Mandefero Sorecha well explained that constitutional environmental rights reference to ecological balance is so controversial for many scholars in the field since it is very difficult to determine ‘certainly for what exactly it means for an ecosystem to be in equilibrium or what makes one equilibrium ‘better’ than another, are questions about which there is both uncertainty and disagreement among ecologists.³⁷ As the constitution of many countries’ use different terminology to qualify the term ecology according to their circumstances.

³⁵ Linda Hajjar Leib, ‘ *Human Rights and the Environment*’: Philosophical, Theoretical and Legal Perspectives (14 Jan. 2011), P. 91

³⁶ Ibid

³⁷ Mandefaro Sorecha, Implementation of EIA Laws in East Shewa Zone of Oromia National State Special Reference to Lume and Ada’a Woreda: Case study on various projects, Thesis for the partial fulfillment of master degree in LL.M, AAU, (2011)

However, the environmental constitutionalism's inherent ambiguities may suggest that environmental rights are so laden with policy matters as to be not justiciable, but better left to legislative bodies.³⁸ For instance, environmental safety and protection become problematic issues that may raise policy matters so as to strike a balance between socio- economic development and environment rights from the point of view of the cost- benefit ledger. On the other hand, protection of environment can be described as it can preserve the way of life for some but at the same time it can damage the way of life for others.³⁹ It can be more costly than justification of other rights in terms of cost of cleaning up toxic sites or loss of revenues from industrial development.

The environment and environmental protection have recently become concern of the international community. There is a deep concern by the UNCHE, having met at Stockholm from 5 to 16 June, 1972, have considered the need of a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment.⁴⁰

On the other way, Dr KN Sheth and Dr KC Raval study show that there is strong linkage between environment rights and human rights in terms of protection or conservation of a clean and healthy environment for the benefits of individuals whose life is threatened by noise disturbances or air pollution arising from airports pollution and industrial activities.⁴¹ The fact that has to be noted there are sensitive noise receptor and other pollutions areas like schools, hospitals and religious places which found near to the construction industries.

In the case of Ethiopia, ERs are acknowledged in the constitution in 1994 and to fully realize the right to a clean and healthy environment, the country adopted environmental policy in 1997. In fact, the concept of (ERs) and sustainable development (SD) are incorporated in the constitution of FDRE under articles 43, 44 and 92. It is stipulated that "People's right to development, right

³⁸ Ibid P.7

³⁹ Ibid P.6

⁴⁰ Stockholm Declaration on the Human Environment, in Report of the United Nations Conference on the Human Environment, UN Doc.A/CONF.48/14, at 2 and Corr.1 (1972)

⁴¹ Dr KN Sheth and Dr KC Raval (2016), 'Environmental Rights as Human Rights- Focus of International Law', P.4

to improve living standards, and to sustainable development; and participation in national development and in particular, to be consulted with respect to policies and projects affecting them directly.”⁴²

Similarly, FDRE constitution incorporates environmental rights that state “All persons have the right to a clean and health environment.”⁴³ It also envisages the design and implementation of programs shall not damage or destroy the environment. Indeed, people have the right to fully consultation and to the expression of views in the planning and implementation of environmental policies and projects that affect them directly.⁴⁴ Therefore, construction industry is among one of the development project programs that may cause urban environmental pollution, which in turn affect environment and health of residents those who live nearby the construction industries sites.

2.3.1. Substantive Environmental Rights

Fundamental environmental rights are those recognized as a right to some degree of environmental quality, that has been qualified by adjectives terms like a right to an ‘adequate’, ‘clean’, ‘healthy’, ‘productive’, ‘harmonious’, or ‘sustainable’ environment.⁴⁵ Furthermore, environmental rights have been recognized as an advocate of non-environmental substantive rights such as the rights to life.

Scholars have different views on the issues of whether the right to environment should be substantive or procedural in character. The advocate for a substantive right to environment argues that a substantive right provides more effective protection and plays a role of defining and mobilizing support for environmental protection.⁴⁶ Therefore, substantive environmental rights are deemed to afford the most durable and enforceable means for protection.

⁴² FDRE Constitution Art.43

⁴³ Ibid Art.44

⁴⁴ Ibid Art.92

⁴⁵ May and Daly (n 34 above), P.81

⁴⁶ Dias Ayesha, ‘Human Rights, Environment and Development: With Special Emphasis on Corporate Accountability’,(2000)

2.3.2. Procedural Environmental Rights

There are a range of procedural environmental rights (PERs) at worldwide and domestic levels, which are pertinent to environmental protection. It involves pillars such as the right to information, the right to receive prior notice of environmental matters, the right to EIA, the right to participate in decision making, the right to legal remedies or access to justice by including standing to initiate public litigation and right to effective remedies where environmental damage occurs.⁴⁷

Advocates of procedural Environmental rights (PERs) argue that a single precise formulation of a substantive rights is difficult to environment as it's not feasible since "the desired quality of the environment is a value judgment, which is difficult to codify in legal language."⁴⁸

Moreover, a constitutional guarantee to a beneficial environment is more likely to take root when stakeholders have the right to receive free and timely information, participate in discussions and appeal to government agencies granting permission to air pollutants near school, mega fauna, flora, industries etc.

2.3.3. The 1998 Aarhus Convention: The Right to Information, Participation and Access to Justice

The Aarhus Convention was adopted at the 4th 'Environment for Europe on 25 June 1998. The Convention incorporates provisions that are vital for procedural environmental justice. The preamble of the Convention is aimed at implementing Principle 1 and 10 of the Stockholm and Rio declaration respectively. According to Bende, even though the 'Aarhus procedural rights' are not in themselves a universal remedy, they have a significant implication in resolving global environmental problems, especially in developing countries.⁴⁹ The Stockholm declaration principle 1 reads as;

⁴⁷ Ibid

⁴⁸ Ibid

⁴⁹ Pamela T. Sambo (2012), "Conceptual Analysis of Environmental Justice Approach: Procedural Environmental Justice in the EIA process in the South Africa and Zambia." Thesis Submitted to the University of Manchester for the Degree of Doctor of Philosophy in the Faculty of Humanities.

“In order to contribute to the protection of the rights of every person of present and future generations to live in an environment adequate to his or her health and wellbeing, each party shall guarantee the rights of access to information, public participation in decision making and access to justice in environmental matters.”

According to this Convention Procedural environmental right consists of three ‘pillars’ access to information, participation and justices. Therefore, the pillars work in tandem to ensure better decision making in environmental matters⁵⁰.

2.3.3.1. Access to Environmental Information

The Oromia Regional State Constitution stipulated that the people have right to fully consultation and expression of views in planning and implementation of environmental policies and projects that directly or indirectly affect them.⁵¹ This indicates that the people have the right to access to information to entire consultation and expression of their views on the programs and projects that directly or indirectly affect them and environment. However, the Federal and Oromia Constitution stipulated right to information, there is a little room for implementation in practice. Access to environmental information is the starting point for public participation. In absence of genuine and meaningful access to information, public participation becomes mere rhetoric. It is a right to access timely and reliable information from governmental agencies charged with overseeing activities that affect the environment.

Moreover, in Article 19 of the UDHR and ICCPR stated that the right to freedom of expression includes the freedom “to seek, receive and impart information.”⁵² The ideas of these covenants envisage that the right of information is an important prerequisite for the implementation of the right of participation and access to environmental justice. Special Rapporteur on the adverse effects of the illicit movement and dumping of toxic and dangerous products and wastes on the enjoyment of human rights, the right to information and participation are rights in themselves and essential tools for the enforcement of other rights.⁵³ Therefore, construction industry is

⁵⁰ May and Daly, (n 34 above), P.83

⁵¹ Oromia Regional State Constitution Art.107(3)

⁵² Ibid P.16

⁵³ Ibid P.16

among developmental programs and projects which has an adverse impact on the urban environment due to lack of access to information by the people who live near the construction industries.

2.3.3.2. Access to Public Participation

Public awareness of environmental issues was significant if public participated at every stage of environmental management. Public participation is stipulated in the EIA proclamation of Federal and regional, however, in practice there is a little room for public participation in EIA process due to absence clear guidelines and awareness that enable the people to get adequate information regarding the EIA process.⁵⁴ According to ONRS EIA Proclamation No.176/2012, the public participation is held in two phases; during the making and review of EIA. There is no a genuine participation of public in environmental decision making process. This resulted in a clear violation of the constitutionally guaranteed rights of the people. The other researcher criticized the practice of ONRS access to environmental justice, as some owners of the projects were conducted EIA only for the sake of formality and also listed and attached the names of certain individuals with their signature.⁵⁵

The preamble of solid waste management proclamation incorporated community participation to prevent the adverse effects and to enhance the benefits resulting from solid waste.⁵⁶ According to this proclamation community participation was designed to involve at grassroots level community to manage solid waste. Therefore, since construction activities wastes are part of MSW management, the community has the right to get a genuine participation and information on the construction activities that polluted their environment and affected their healthy.

⁵⁴ Emelie Cesar and Anders Evborn 2013, “Ethiopian Environmental and Climate Change Policy Brief” P.22

⁵⁵ Azene Endamalaw Basazine, “Access to Environmental Justice in Oromia Region”, International Journal of Research and innovation and Scientific (IJRSI), Vol.III, Issues XI, Nov.2016, P.4

⁵⁶ Preamble of Proc.No.513/2007

2.3.3.3. Access to Justice in Environmental Matters

The FDRE constitution guaranteed the rights to access to court whenever there is a justiciable matter. The constitution laid down ‘access to justice’ under article 37 of the constitution, any person has the right to bring suit to seek justice for the justiciable matters before court.⁵⁷ Additionally, the Proclamation No. 300/2002 unequivocally grant the right of Standing to any person without the need to show vested interest bring the case at the Commission or the relevant regional Environmental Authority against any person causing actual or potential damage to the environment.⁵⁸ However, the same proclamation mention that, when the Commission or regional Environmental Authority fail to give decision within thirty days or when the person who bring legal suit is not satisfied by the decision, he may be brought to the court his case within sixty day, from the day decision was given.⁵⁹

Mekete well stated that absence of the standing (loci stand) to sue has been one of the problems in the enforcement of environmental rights in several countries where the procedural laws requires plaintiffs to show vested interest in the case that to be lodged to the court.⁶⁰ This reveals there is no effective access to court and administrative proceeding to redress and remedy aggrieved party that suffered from the environmental pollution. Access to court is very problematic in case environment inflicted by any types of pollution because the environmental law has a little room for practical implementation.

Regarding to the enforcement of rights relating to access to justice in environmental matters, there are many challenging problems in reality. Many writers like Desalegn argue that environmental rights are not often subject to judicial proceedings like other rights. For instance, it is uncommon to bring suit against the party that damaged the environment before the court of law, in case industrial pollution emitted from different industries’ threat to urban residents health and other negative consequences on the human environment.

⁵⁷ Art. 37 (1),(2(a, b)) of the FDRE constitution

⁵⁸ Art. 11(1)of Proclamation No.300/2002

⁵⁹ Ibid Art.11(2)

⁶⁰ BT Mekete “The Scope of Citizens’ Environmental Rights Protection under Ethiopian Law” in M.Faure and W.Plessis (eds). *The Balancing of Interests in Environmental in Africa*(2012),P.116

Other researchers argue that the low income communities have little lobbying capacity on the decision-making process of legislative and environmental Authorities.⁶¹ The marginalized society has a little access to information, participation, and justice in environmental issues. Therefore, the marginalized societies have probability to face high environmental risks, due to lack of technical, legal and resources to effectively participate in decision-making process. In fact, law did not preclude public interest litigation, but there is no access to information that strength environmental legislation to be implemented.

⁶¹ Pamela T.Sambo (n 49 above), P.76

CHAPTER THREE

3. THE CONCEPT OF CONSTRUCTION INDUSTRY

The Construction Industry (CI) is described as the summation of all economic activities that related to civil and building works; with conception of their planning, execution and maintenance.⁶² It is not possible come up with a universally accepted definition of Construction Industry; due to the fact the meaning granted to the phrase has got different meaning according to circumstances of different societies. The definition does not fit all, as there is no standard definition to the concept of construction industry. It plays a great role in building economic infrastructure, such as roads, railways etc., widening social infrastructure like schools, hospitals and expanding factories as countries' quest for development.⁶³

The Construction industry is a fundamental sector of the economy that transforms various resources into constructed physical economic and social infrastructure that is necessary for socio-economic development. It is also defined as “a process by which the physical infrastructure are planned, designed, procured, constructed or produced, altered, repaired, maintained and demolished.”⁶⁴ Researcher like Amal Abuzeinab suggested that the construction industry has narrow definition. According to this researcher the narrow definition limits attention to onsite activities that undertakes by contractors, whereas the wider definition were likely to encompass the supply chain for construction materials ,products, assembles and professionals services such as architecture, management, consultants, engineering design, surveying and perhaps facilities management, property developers, clients and users.⁶⁵ These all stakeholders have responsibility to minimize the environmental pollution that resulted from the construction activities at different phase in collaboration. The wider definition of Construction Industry has the potential to draw attention to economic and environmental activities that directly dependent on the contractors’

⁶²Tekle Hogas(LL.B & LL.M) and Mahelet Shewangzaw (LL.B), Construction Law Teaching Materials under sponsorship of Justice and Legal System Research Institute (2009)

⁶³ Ibid

⁶⁴ Construction Industry Policy (n 6 above), P.1

⁶⁵ Amal Abuzeinab (2015), Implementing Green Business Models in the UK Construction Industry: Opportunity and Challenges P.8

activities which has been restricted to the onsite.⁶⁶ Therefore, this definition reveals that the construction industries are likely to involve all stakeholders and professionals in order to achieve economic and environmental objectives. Moreover, the construction industry has been known among researchers for its effect on environment degradation, and has gained concern to mitigate the environmental impacts related to construction activities.⁶⁷

3.1. Expansion of Construction Industries in Ethiopia

The government of Ethiopia has given due emphasis to ensure faster and sustained development of the industrial sectors, as proposed in the Growth and Transformation Plan (GTP). Moreover, Ethiopia aims at using IP development as an instrument to catch up and sustain development through export growth, human capital development, technological learning, upgrading and innovation and create employment opportunity.⁶⁸ Thus, the government has established IP proclamation No. 886/2015 to realize transformational process for industrialization through strong institutional arrangements. GTP I planned for the establishment of five industrial parks (IP) in the country, such as Bole Lemi and Kilinto industrial parks in Addis Ababa, Hawassa, Dire Dawa and Kombolcha industrial Parks (IP):-

Bole Lemi I- is the first IP operating under the IP development strategy which is covering 156 hectares. It was established in 2012 with help of World Bank loan, and started its operation in 2014. In fact, it comprises 20 pre-established factories of which 185,000m² is space) rented out to more than 10 foreign owned manufacturing companies producing and exporting leather and apparels goods.⁶⁹ Bole Lemi I IP is not susceptible to the ecological sensitive area, as there is no park or sanctuary around the industrial site that may be affected by implementation of this

⁶⁶ Ibid

⁶⁷ Bakhtiar, Shen and Misnan, “A framework for comparison study on the Major Methods in Promoting Sustainable Construction Practice”, Jildi 12, No 3, 2008, P.56

⁶⁸ Alebel B. Weldesilassei, Mulu Gebreeyesus, Girum Abebe and Berihu Aseffa, “Study on IPD: Issues, Practices, and Lessons for Ethiopia.”2017, EDRI Research Report 29 Addis Ababa, P.119

⁶⁹ Xiaodi Zhang, Dejene Tezera, Ciyong Zau, Zhen Wang, Jie Zhao, Eneyew Abera Gebramenfas (2018), Inclusive and Sustainable Industrial Development Working Paper Series 21/2018, “ Industrial Park Development in Ethiopia Case Study Report in Ethiopia.” P.19

industrial park. As suggested by researchers problems with Bole Lemi I Park are waste disposal coming from the city is disposed around the industrial park and leakage on shed during rainy season.⁷⁰

Kilinto IP- the World Bank supports the development of the new industrial hub in Kilinto 20miles south of Addis Ababa. Kilinto IP aims at a mixed use park and the top destination for manufacturers in agro-processing, pharmaceuticals, electric, electronics products, wood and furniture both for export and to serve local consumers.⁷¹ Its primary objective is conducting Environmental and Social Impact Assessment (ESIA) to make sure that potential evils of proposed KIP are identify at the early phase of feasibility study to develop minimizing strategy.

Furthermore, the KIP implementation should be handled without creating considerable impacts on the biological and socioeconomic development. The park has guiding principles which are eco-friendly, possessing feasibility study and maintaining working environment. As it mentioned in the ESIA study, the project has both potential positive advantage and negative impacts. Among positive impacts of the project, economic significance is the immediate advantage for a number of jobless populations living near and around the project. The other importance of the KIP is import substitution, promotion of exports and generation of foreign exchanges, improving the quality and living standard of citizens, technology and knowledge transfers and employment generation.⁷²

On the other hand, there are major negative impacts of the project which related to environmental pollution, health and safety of workers and residents near and around the project. The study identifies that the potential negative impact is the releasing of uncontrolled solid waste and liquid waste from the industrial activities in the IP will have on the nearby Akaki River which has almost become reservoir of the whole Addis Ababa.⁷³ In fact, the main source of pollution that enters water bodies is industries, municipal solid waste and oily wastes from

⁷⁰ Yohannis Melaku and Liyla Mohammed, 'Evaluation of the implementation of EIA in Bole Lemi Industrial Park': in the case of Addis Ababa, Vol.7, Issue 1, Feb.2020, P.122

⁷¹ Xiaodi Zhang et.al(n69 above)

⁷² Ibid

⁷³ Ibid

garages and fuel stations. However, the study shows that there is no ecological sensitive area such as national park, animal sanctuary, reserve area, wetland etc. that could be affected due to construction of the Kilinto IP.

Hawassa Industrial Park (HIP) - Hawassa eco-industrial Park which covers 300hektares of land, is the 3rd government sponsored industrial park, located 275km south of Addis Ababa. As HIP is Africa's first zero emission textile industrial park, the government of Ethiopia is trying to develop it into Africa's first development IP with art of infrastructure and equipment.⁷⁴

HIP is differentiated from other IP because the government of Ethiopia invested in a state-of-art Zero-Liquid- Discharge (ZLD) treatment plant. Therefore, with such technology, 90% of the water is recycled and reused and the final waste is crystalized. Like other IP, the Hawassa Industrial Park is also not pollution free although environmental monitoring is required for common effluent treatment plant and solid waste management, but the full monitoring has not begun due to the failure of the Environment, Forest and Climate Change Commission (EFCCC) to do so.⁷⁵

3.2. Types of Environmental Pollution by Construction Activities

3.2.1. Noise Pollution

The noise pollution range from community noise to occupational noise, such as road traffic, air traffic, machine use, and construction activities. Unlike other environmental problems noise does not lead to chemical or organic pollution of national resource but instead affects human being and other animals directly. Moreover, the researchers noted that excessive noise generated on a construction site may affect the right to silence; comfort and health of workers, nearby dwellers and it may have adverse effect on the normal activities that has been conducted nearby the site, such as school, hospitals and other social services that found within vicinity.⁷⁶ The main source of noise on construction site is directly related to the use of powered mechanical

⁷⁴ p.29

⁷⁵ Support to OSS Services at Industrial Park, Survey Result on Current OSS Process at Hawassa and Bole Lemi I IP, Dec.2019, JICA, EIPP Team, P.10

⁷⁶ Ayarkwa, J.Acheampong, A.,Hackman et al.(nl above)

equipment such as excavators, dozers and hammerings works was considered as a major cause for noise activities onsite.⁷⁷

The EU's Environmental directives (2002/49EC) aims to manage noise exposure in built up environment, and at the same time pay due attention to noise sensitive areas accommodating vulnerable groups of society, like hospital and school setting.⁷⁸ A great emphasis has given to the environmental noise because it has been resulted in a various health problems, and considered as the main source of stress for city dwellers. Another study also reveals that on-site construction activities cause air, noise, water and waste pollution. Moreover, the Nigerian government has taken measures to pass ordinances and regulations to control air, noise, water and waste pollution.⁷⁹ Additionally, activities that cause noisy;

“The heavy equipment used in the site excavation and construction works; diesel generators used for on –site power generation and the road vehicles used for transportation of materials and workers to site will have an adverse impact on ambient noise levels.”⁸⁰

The construction noise generated by different types of machinery, construction process and multiple devices that have been impaired the living environment. There will be impacts that associated with residential unit construction and camp site development nearby urban residents with the project areas.⁸¹ The urban dwellers living near to the construction sites were more likely to face excessive noise that generated from the sites. Therefore, the environmental supervisor has responsibility to monitor the implementation of proposed mitigation measures to cover noise that occurred during land clearing and leveling etc.⁸²

⁷⁷ Ibid

⁷⁸ Making Our Cities Attractive and Sustainable: ‘How the EU Contributes to Improving the Urban Environment’ (2010), P.15 (available online)

⁷⁹ International Journal of Innovative Research and Advanced Studies (IJIRAS), Vol.3 Issue 9, August 2016

⁸⁰ The FDRE, Industrial Parks Development Corporation : Updated Environmental and Social Assessment for KIP, March 2017, P.195 (hereafter cited as FDRE Industrial Parks Development Corporation)

⁸¹Classic Consulting Engineering PLC (2017), ERA Updated Environmental and Social Impact Assessment, P.61 (available online)

⁸² Ibid, P.63

As a result, to ensure that noise levels generated from machinery, vehicles and construction activities comply with Ethiopian standards are generally kept at minimum for the safety, health and protection of workers within vicinity of high noisy levels and nearby communities.⁸³ Other literature suggested that persistent environmental noise above 40-55dBA (time weighted average noise exposure in decibels) causes annoyance; levels of 40-60dBA disturb sleep, while levels of 65-70dBA increase the risk of ischemic heart disease and noise level above 70dBA cause hearing impairment.⁸⁴

Dust Pollution by Construction Industries

Dust pollution is the matters that contractors and the government give great attention to be well addressed in the sphere of sustainable construction industry. The Construction Industry is criticized for its being releasing huge amounts of pollutant particulate matters to the atmosphere from construction works. Construction dust pollution may originates from various kind of onsite activities like excavation, drilling, bulk material transportation, loading and unloading, open-air material storage, concrete and mortal making, cutting and filling and movement of the equipment.⁸⁵

Means of transportation that engaged into daily activities on the construction sites can generate excessive dust to the urban environment or the resident of the city near to the sites. Furthermore, excavation and demolishing activities that underway at the construction sites can cause dust generation.⁸⁶ The construction activities cause inconvenience to public by generating dust and noise, waste materials removal, polluted water to drainage system, removing of plants at the sites. According to construction dust control policy of the Yakima Regional Clean Air Agency, under certain circumstances, construction sites generates very large amounts of particulate pollution or fugitive dust which can constitute a health threat to surrounding populations,

⁸³ FDRE Industrial Parks Development Corporation(n 80 above), P.193

⁸⁴ Sir John Lawton (2007) ,Royal Commission on Environmental Pollution: “The Urban Environment”, P.43

⁸⁵ Jinding Xing, Kunhui Ye, Jian Zuo and Weiyan Jiang (2018); “Control Dust Pollution on Construction Sites: What Governments Do in China?”

⁸⁶ J.Ayarkwa, A. Acheampong, J. Hackman et al (n1 above), P.10

contributes to the violations of the National Ambient Air Quality Standard and be considered by neighbors as nuisance.⁸⁷

3.2.2. Light Pollutions by Construction Activities

Light pollution (LP) is a broad term, and the international commission on illumination has yet to agree on a definition to describe the adverse effects of artificial light on the night-time natural environment that also impacts flora, fauna and humans.⁸⁸ There are various sources of pollution from construction industries as it is considered the main source of national economy of specific country and it has a significant role of economic development in global level too. Among the other types of construction pollutions to the environment, light pollutions is new a concept that does not get due attention, especially, in developing countries; there is no responsiveness to that level.

Researchers like Geng Zhang described light pollution as a common pollution of building next to the contaminated waste gas, waste water, noise and a new source of environmental pollution, which is generated at construction sites mainly during the welding emitted light at night.⁸⁹ These light pollutions have tendency to affect people's normal sleeping time and the light from the source may cause danger to human eye. The residents those who live close to the construction industry that underway may be face other health problems.

On the other way, Yan Shuai Ping well studied that light pollution is mainly discharged at construction site, by using excessive lighting devices at night.⁹⁰ These light pollution emitted from illumination equipment run through glass of residential houses near the construction fields and it will disturb the dwellers.

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⁸⁷ Gary W. Pruitt; Construction Dust Control Policy of the YAKIMA REGIONAL CLEAN AIR AGENCY, August 9, 2012, P.1 <<https://www.yakimacleanair.org/img/pdf/112.pdf>> accessed on Dec.30/2020

⁸⁸Karolina M.Zielinska-Dabokowska, Kyra Xavia and Kataryzyna Bobkowska (2018): 'Assessment of Citizens' Actions against Light Pollution with Guidelines for Future Initiatives', P.5

⁸⁹ Geng Zhang (n 15 above)

⁹⁰Yan Shuai Ping, Nature Environment and Pollution: "*Environmental Pollution in Construction Sites and Corresponding Green Construction Measures*", Vol.17, No.4, 2018.

Waste pollution could be generated from several sources like residential sites, commercial areas, and construction site. Precisely, construction and demolition waste is released whenever any construction or demolition activities like building roads, bridges, subway, remodeling were underway.⁹¹ These wastes are being criticized for its heavy density and bulkiness which occupy a considerable storage space, either on the road side or communal waste bin or container. It is unfamiliar to see huge piles for such waste, which is heavy as well, stacked on roads especially in large projects, resulting in traffic jams and disruption.

The construction industry affects the environment or ecology as it exploits natural resources, irreversibly transforms the natural environment and emitted pollutants to the environment and consumes the world's finite energy resources and minerals.⁹² Another, adverse impact of construction industry on the urban environment is the generation of construction demolishing wastes. The researchers on the areas well-defined C&D waste as “the waste produced during new construction, renovation and demolition of buildings and structures.”⁹³

Demolition is defined as “*dismantling, razing, destroying or wrecking any building or structure or any part thereof by pre-planned or controlled manner.*”⁹⁴ This definition implies that demolition of buildings or structures have to be undertaken in a way not to damage the urban environment. Moreover, building is not demolished randomly without installing techniques and mechanisms that help to manage a potential risk that may pose environmental and health problems.

Demolition may hold different chemicals hazardous that poses a serious risk to human health, the environment and groundwater quality. Therefore, the government needs to demolish the

⁹¹Dr. S.R.Shukla and others, “*Municipality Solid Waste Management*”, Ministry of Urban Development, New Delhi(1998), P.57

⁹²Gur Polat, Atilla Damci, Harun Turkoglu and Asli Pelin Gurgu (2017), “*Identification of root cause of construction and Demolition (C &D waste)*”: Case of Turkey.

⁹³ Ibid

⁹⁴ Patel Pranav, Tayeshkumer Pitroda, J.J. Bhavsar (2015), International Conference on; “*Engineering: issues, Opportunities and Challenges for Development.*” Demolition: Method and Comparison, P.1

constructions which violate the building rules and regulation to ensure structural safety, health safety, fire safety and construction safety of building.⁹⁵

3.3. Federal Environmental legal Regimes

Like other countries, Ethiopia adopted environmental laws that are influenced by global environmental awareness that came on the wake of the Stockholm Conference in 1992.⁹⁶ Similarly, the WCED and UNCED specifically called on donors to assist developing countries to establish the national legal infrastructure for environmental protection. There are a range of environmental legal instruments at both national and regional level that have objective to protect the environment to conform to sustainable development. Some of the environmental regulatory instruments are the FDRE Constitution of 1995, Environmental Policy of Ethiopian 1997, Proclamation No.300/2002, and Proclamation No.299/2002 and others pertinent laws at regional level may consulted regarding to urban environmental pollution by construction industries.

3.3.1. Solid Waste Management Proclamation No.513/2007

The Proclamation stated that urban administrative may themselves undertake or enter into agreements with construction enterprises to refill solid waste disposal or quarry pits with pebbles or gravel from demolished buildings or with excavated earth.⁹⁷ The construction permits shall be issued only when the building contractors deposit a legally valid bond or any other instrument to ensure the environmentally sound disposal of construction wastes or excavated earth.⁹⁸ The proclamation further stated that urban administration shall, before the commencement of any construction of residential houses, ensure the availability of adequate facility for an environmentally sound solid waste management.⁹⁹ According to the proclamation construction wastes or pollution used to be part of municipal solid waste management but not separately treated by other special law.

⁹⁵ Ibid P.2

⁹⁶ Krueger et al "*Environmental Permitting in Ethiopia: No Restriction on 'unstoppable Growth?'*"1(1) Haramaya Law Review(2012), P.75

⁹⁷ Art. 12(3) of Proc.No.513/2007

⁹⁸ Ibid Art.12(2)

⁹⁹ Ibid Art.12(3)

For instance, the C&D waste in India is described as part of MSW, but later on solid waste management Rule 2016 has been separately notified.¹⁰⁰ According to Rule 2016, C&D wastes are no longer part of municipal solid management¹⁰¹. On the other hand, building proclamation vividly stated that no person shall, at any time, during course of or after demolition of building leave it in a condition dangerous to the public or any adjoining property.¹⁰² Furthermore, article 25(3) of the same proclamation explains that all precautionary measures that should be taken for the new building, is also taken for any alteration, repair, extension or demolition of an old building.¹⁰³

Though, the proclamation did not incorporate environmental protection clause in precise manner, it can be inferred from the phrase ‘all precaution measures’ indicate that the waste of building or demolition should not damage the environment and health of urban residents. Additionally, the proclamation stipulated that construction materials or residues which are accumulated around a construction site may be ordered by written notice to the owner of the site by urban administration or designated organ to remove residues within time bound specified in the notice.¹⁰⁴ According to the proclamation there are no mechanisms used to transport the remains or residues at constructions site to disposal place by the owner of the construction.

3.3.2. Environmental Pollution Control Proclamation No.300/2002

The preamble of proclamation stipulated some social and economic development activities may inflict environmental harm that could make the activities counter-productive. The key objective of the proclamation is to eliminate or when not possible, to mitigate pollution as an undesirable consequence or social and economic development activities.¹⁰⁵ The proclamation stated that a polluter who causes pollution has a responsibility to clean up the environment or pay for the cost

¹⁰⁰ Ahluwalia and Petel (2018) Working Paper No.356, Solid Waste Management in India, “An Assessment of Resource Recovery and Environmental Impacts”, P.3

¹⁰¹ Ibid P.29

¹⁰² Art. 25(5) of Ethiopian Building Proc. No.624/2009

¹⁰³ Ibid, Art. 25(3)

¹⁰⁴ Ibid Art.32(3)

¹⁰⁵ Preamble of Proc.No.300/2002

of cleaning, as determined by the EPA or relevant regional environmental Authority.¹⁰⁶ A polluter has two options either to clean up or pay for the cost of cleaning the polluted environment.

In addition, the proclamation stated that:

“Any person engaged in any field of activity which is likely to cause pollution or any other environmental hazardous shall, when the Authority or the relevant regional environmental agency so decides, install a sound technology that avoids or reduces to required minimum, the generation of waste and, when feasible apply methods for the recycling of waste.”¹⁰⁷

This implies that a polluter has to install a sound technology into industry that causes pollution to the environment. Recycling technology may be installed to reduce or avoids pollution emissions released by construction industries by a polluter.

The key role for the REFCCA is to monitor and inspect polluting industries. In fact, the proclamation goes too far and gives too little oversight of environmental inspectors who, enforcing the standards, may enter any premise, question any one, inspect and seize any materials at the inspectors’ discretionary power.¹⁰⁸ Some writers argue that inspector’s power to enter any premise, question any one, and inspect and seize any materials is sweeping in law but they are not so sweeping in practice.¹⁰⁹ Moreover, the proclamation sets environmental standards based on scientific and environmental principles in consultation with competent agencies.

The ‘competent licensing agency’ that issue license can be the Investment commission, the Ministry of Trade and Industry, or a bureau of the regional government, depending on the types of project, where it is located and whether foreign investors are involved.¹¹⁰ However, the

¹⁰⁶ Ibid Art.3(4)

¹⁰⁷ Ibid Art.3(3)

¹⁰⁸ Krueger et.al (n 96 above) P.86

¹⁰⁹ Ibid

¹¹⁰ Ibid P.82

officials at licensing agencies do not have adequate knowledge about the environmental standards and directives; because environmental issues are not their focus or not their inherent power rather it is sectorial issues for them. Surprisingly, the Regional Environment, Forest, Climate and Change Authority (REFCCA) do have a little permitting power.¹¹¹ Because the licensing issue is handled by other sectors, depending on the nature of project that need business permit in compliance with environmental standard set for the project. According to regulation No.159/2008 Licensing Agency has a power to grant a business license a factor checking effluent is not pollutant or will not exceed the environmental standard and it is not damage if released into the environment.¹¹²

On the other hand, the main purpose of introducing Provisional Standards for Industrial Pollution Control (PSIPC) is to prevent major industrial pollution by incorporating standards that must be respected and by indicating pollution limits beyond which the environmental would not tolerate in Ethiopia. According to PSIPC, industrial pollution and resource degradation need not arise if a framework of sustainable development is appropriately formulated and implemented.¹¹³ The regional states can establish more stringent standards taking into consideration particular ecological conditions in their localities provided that these present standards are used as the minimum. For instance, the maximum limits of noise allowable for industrial area during day time 75dB (A) leq and 70dB (A) leq at night. The maximum allowable sound for commercial and residential area are 65dB (A), 55 dB (A) and 55dB (A) and 45dB (A) respectively during day and night time.¹¹⁴ In fact, standards are issued to minimize the amount of pollution to which people living or working near industries are exposed. The noise that beyond the permitted level can be cause environmental pollution and health problems on the dwellers living near the construction industries.

¹¹¹ Ibid P.83

¹¹² Prevention of Industrial Pollution Council of Ministers Regulation No.159/2008, Negarit Gezate 15th year No.14, Addis Ababa, Art.5

¹¹³ Provisional Standards for Industrial Pollution Control of Ethiopia

¹¹⁴ Ibid P.30

3.3.3. EIA Proclamation No.299/2002

EIA were first adopted in the 1960, shortly thereafter national law and international treaties began imposing requirements that were comprehensive and detailed. The EIA seeks to ensure that the adequate and early information is obtained on likely environmental consequences of development projects, on possible alternatives and measures to mitigate harm.

It is a prerequisite to decisions to undertake or to authorize designated construction, process or activities but where decisions are made purely on economic and technical grounds without taking into consideration environmental costs and benefits; the EIA may be rejected as seriously flawed.¹¹⁵ In Ethiopia, there is an urgent need for the development of effective and detailed EIA. However, researcher like Desalegn Amsalu has been examined that the environment is not well featured on the development agenda rather focused on the short term evaluation of project technical feasibility and economic advantages.¹¹⁶ Mostly, EIA were conducted without taking into account the broad concept of the environment and development.

A Proc. No.299/2002 requires an EIA process for any planned development project or public policy which is most likely to have an adverse impact on the environment. The proclamation mentioned that no person shall commence implementation of a proposed project that requires EIA without first go through environmental impact assessment process and getting authorization from the competent environmental Agency and submitted the report to concerned environmental agencies.¹¹⁷ According to this proclamation every project that falls in any category listed in directive as a project not likely to have negative impacts that do not require EIA, however, projects likely to have negative impacts subject to environmental impact assessment.¹¹⁸

Similarly, at the Federal level Environment, Forest and Climate Change Commission (EFCCC) was established by Proc. No.1097/2018 as competent environmental regulatory organ. The proclamation empowers the Commission to establish a system that enables undertaking EIA or strategic environmental assessment of social and economic development policies, strategies,

¹¹⁵ Desalegn Amsalu (n24 above)

¹¹⁶ Ibid

¹¹⁷ Proc. No. 299/2002

¹¹⁸ Ibid Art.5(2)

laws, programs and projects set by government or private entities and follow up its enforcement¹¹⁹ Under similar proclamation, Commission has mandated to establish a system of evaluation of the EIA of investment projects by proponents through concerned sectorial licensing organ or concerned regional organ prior to granting permission for implementation in accordance with EIA proclamation.¹²⁰

For instances, Ethiopian Investment Commission (EIC) under takes different types of investment project that requires EIA as mandatory legal requirement to control the negative impacts that exacerbate the environmental risks. The EIC is working with other sectorial institutions to minimize an adverse environmental impact. Moreover, there is absence of awareness and widespread of misconception about EIA in Ethiopia, some investors considers EIA as an obstacle to development and they narrowly focus on their economic profitability by neglecting environmental issues.

¹¹⁹ Art. 32(3) (b) of Proc.No.1097/2018 Definition of Powers and Duties of the Executive Organs of the Federal Democratic Republic of Ethiopia

¹²⁰ Ibid Art.32(3)(e)

CHAPTER FOUR

4. URBAN ENVIRONMENTAL POLLUTION BY CONSTRUCTION INDUSTRIES IN DUKAM TOWN: ANALYSIS OF CASE STUDY

4.1. General Background

Dukam town is found in Oromia National Regional State and is situated at 37Km south east of Addis Ababa along Adama-Dire Dawa highway and on the Ethio-Djibouti railway. It is also 10km northwest of Bishoftu with a latitude and longitude 08°48'N38°54'E. As Ethiopia's first IP, from its inception, Dukam Eastern Industrial Zone has shown the positive impact on the industrial development and become a place for manufacturing and platform for developing and transferring skills. Dukam town is well known for being center of industrial zone and corner of economic development of Ethiopia.

Dukam City administration consists of four kebele such as, Dhadachaa, Koticha, Melka and Gogecha kebele administration. In Dukam city administration Dhadachaa kebele is purposely selected as there are extensive residential buildings and industries are under construction along highway road to Addis Ababa. Specifically, in the selected study area there are several factories that were under operation and construction such as, Habisha Steel Factory, Eco and Aminew Textile and Garment Factory.

4.2. The Enforcement of Environmental laws and Sectorial Laws

The Oromia Environment, Forest and Climate Change Authority (OEFCCA) were reestablished by Proc. No.213/2018, which stipulated reorganization and redefinition of the powers and duties of the executive organs of ONRS. The objective of Environmental Authorities is to establish policies, strategies, laws which enhance socioeconomic development to ensure effective enforcement.¹²¹ Though, the above mandate is granted to the Authorities, they converted mandatory standards to their discretionary power, create gaps and refuse to use their regulatory frameworks or enforcement powers in case there is a clear violations.

¹²¹ Tsegai Berhane and Merhatbeb Teklemedhn Mekelle University Faculty of Law, Environmental Law Teaching Material April 2008, P.189

Concerning implementation of Proc. No. 513/2007, Team leader of Urban Cleanliness and Greenery Development at Oromia Urban Development and Housing Bureau affirmed that at regional level there is no specific regulation, directives and standards that assist for proper implementation of Proc. No.513/2007 to control pollution or waste generated in urban environment.¹²² The power to issue directives on the management of solid waste is provided to the REFCCA by Proclamation No. 513/2007¹²³. Another key informant from the same bureau noted that municipal solid waste management is a city matter and responsibilities though they did not have power to issue directives on the management of the municipal solid waste¹²⁴.

With regardless of Proc.No.513/2007, Proclamation to revise ONRS cities establishment No.195/2015, provide power and functions to the regional cities. For instances, the cities have power to “perform environmental protection activities, such as waste disposal, protection of environmental destruction, installation of pipelines and other similar activities.”¹²⁵ The proclamation further mentions that cities must “ensure that the construction activities underway in the city to be in such a way that the projects not harm the cleanliness, beauty and plan of the city.”¹²⁶

The law backed the cities to protect urban cleanliness and beauty; however, the construction project underway in the vicinity dump cart away or excavated soils around road side, as confirmed by one of resident of ‘Dhadachaa’ Kebele in Dukam town¹²⁷. He said that this may cause drainage during rainy season since there was no ditch covers. The other residents of the same kebele interviewed about the impacts of construction pollution replied that “specially, during under construction of residential houses, factory building and other infrastructure

¹²² Interview held with Ato Gedisa, Team Leader of Urban Cleanliness and Greenery Development, Oromia Urban Development and Housing Bureau on May 3/2021.

¹²³ Proc.513/2007, Art.18(2)

¹²⁴ Interview held with Hingabu Hordefa (PhD) Expert of Urban Greenery at Oromia Urban Development and Housing Bureau on May 5/2021.

¹²⁵ Art.11 (1) (p), Proclamation to revise Oromia Regional State Cities Establishment, Proc.No.195/2015

¹²⁶ Ibid

¹²⁷ Selected individual is a resident of the city, but fear and not willing to mention his name i.e. why I keep his name confidential.

expansion within the city; the dust emission, construction machinery sound, vehicle at the site and other activities are disturbing the residents.”¹²⁸ Researcher concluded from residents’ views in relation to pollution arise from construction activities, it uncommon to implement the existing laws to prevent adverse social and environmental impacts.

The Proc. No.213/2018 stipulated power of the Authority to cause prior EIA to be undertaken where any projects are planned, prepare EIA criteria; as deemed necessary, provide for concerned body, supervise any development activities undertaken not to endanger the environment.¹²⁹ Thus, before commencement of any project EIA is taken as mandatory legal requirement for the projects undertaken by private or public is not to harm the environment and set out criteria for EIA. The Authority has power to supervise development programs that required should not hurt urban environment and residents’ health. The same proclamation gives power to control liquid and solid wastes residues of industrial products and waste released from urban not to pollute ecological, conduct environmental auditing, take or corrective measures, cause to be taken.¹³⁰

Moreover, at the ONRS EIA Proc. No.176/2012 and EPC No.177/2012 were issued to prevent environmental problems that arise due to various developmental projects. For instance, ONRS EIA proclamation has been implemented for a long time without having regulation, directives and standards that materialize the proper implementation the proclamation in the region. In spite of the Commission provides a mandate to regional Environmental Authority, they do not actively issued regulation and directives for the proper implementation of environmental legislations enacted at regional level, specifically in Oromia. Oromia EFCCA expert confirmed that regulation No.219/2020 was issued for the proper implementation of EIA Proclamation No. 176/2012. Therefore, discussions made with relevant officials, experts and other stakeholders indicate that environmental legislations at both federal and regional levels are weakly enforced.

¹²⁸ His name is also kept Confidential as he is not willing to mention his name.

¹²⁹ Art.37(14) of Proclamation No.213/2018 enacted to reorganization and redefinition of the powers and duties of the executive organs of Oromia National Regional State

¹³⁰ Ibid

One of the respondent stated there is a number of reasons that contributed for the weakness of implementation of environmental legislations such as, ‘lack of required knowledge regarding to environmental laws, multidisciplinary professionals are not involved in EIA, consultants are not independent and neutral, public consultation is very minimum, weak follow up and monitoring mechanisms, environmental auditing is not implemented and other similar problems.’¹³¹

4.3. Legal Constraint to Construction Industries Pollution Management

Any development project has its own positive and negative impacts on the environment and human health. The construction activities have potential impact on the environment by deteriorating resource, chemical pollution, noise, physical disruption, etc. Though, noteworthy economic contribution of construction industry acknowledged, it has a capacity to adversely affect the environment as it demands huge non-renewable energy sources and minerals of the world.¹³²

Questionnaires filled by different respondents show that there are multifaceted problems arise due to construction industries expansion. The basic challenges that framed by researcher from the respondents reply include lack of awareness about the project that constructed in the vicinity, lack of effective implementation of EIA procedures, weak enforcement of environmental laws at both Federal and regional levels to control pollution released from construction activities. With respect to construction industries pollution, there is a problem of integration in line with structural frameworks which are loosely considered.

Key respondent from Oromia Regional State Economic Cluster confirmed that the existing environmental legislations do not equally applicable to pollution or waste released by construction activities at the site or offsite like that of waste discharged by factories. The project owners, contractors, consultant and stakeholders attached themselves to the economic benefits gained from the sectors of construction.¹³³ Therefore, the scant attention was given to

¹³¹Interview held on May 10, 2021 with Ato Mohammed Nugusie, Senior expert of Environmental law Compliance Supervision and Monitoring at Dukam Town EFCCA.

¹³² Gur Polat et.al (n92 above)

¹³³ Interview held on February 24/2021 with Demisew Belay, Senior construction engineer at Oromia Regional State, Economic sectors Cluster coordinator.

environmentally sound construction development. As it is noted from discussions Dukam town concerned officials largely focused on the project contribution to economic viability of the country, with regardless of its environmental and social adverse. Furthermore, other key informant said that there is no equal attention and supervision for construction pollution management whether it is demolition waste or air pollution to urban environment.

4.3.1. Lack of Integration and Cooperation among relevant Administrative Organs

In Dukam city administration Dhadachaa kebele is purposely selected as there is extensive residential building and industries are under construction along highway road to Addis Ababa. Specifically, in the selected study area, there are several factories that were under operation and construction such as Habisha Steel Factory, Eco and Aminew Textile and Garment Factory.

As the data obtained from the Dukam Construction Authority, the Aminew Ceramic Factory has been got investment license from Investment Office and its EIA approved by Dukam City EFCCA to engage into ceramic production business. However, as senior expert of Dukam Construction Authority confirmed that the Aminew Ceramic Factory request for construction permit has been rejected by Dukam Construction Authority based on the petition made by community against the factory due to fear of its future release of pollutant substance to the surrounding communities.¹³⁴ However, Dukam Investment Office did not entirely cancel the project investment license; it changed from Aminew Ceramic Factory to the Aminew Textile and Garment Factory.

The key informant mentioned that there was discrepancies among organs that issues investment permit (i.e. Investment office), approving organ (EFCCA), construction permitting organ (Construction Authority), all this administrative structure do not have similar concern for environmental protection.¹³⁵ They pass different decision on single issues because they did not cooperative enough to solve environmental problems that happen due to sustainable development. He further confirmed that the project face early public reaction before the

¹³⁴ Interview held with Tesfaye Tariku, Civil Engineer at Dukam Construction Authority on April 10/2021

¹³⁵ Ibid

proponent starts the proposed construction factory since residents get information about the project prior to its construction permits.¹³⁶

He also stated the reasons why the project face early challenge at planning phase directly related to Dukam city dwellers those living Koticha kebele which is already suffered from the dust and polluted air emitted to the surrounding environment by DiYuan Ceramic Factory which was found within Eastern Industrial Zone.¹³⁷ Many residents living in Koticha kebele stated that DiYuan Ceramic Industries have great impact on the biodiversity and health of surrounding community.¹³⁸ As it is inferred from the discussion made with residents, the dust and polluted air released to the vicinity by the factory has adverse impacts on plantation. Team leader of Supervision and Monitoring of Developmental projects at Dukam EFCCA also affirmed that DiYuan Ceramic Factory is warned by letter written on 18/04/2010 E.C to be closed and informed them to take their property that may be damaged since its dust and polluted gaseous emission affect the community health and safety¹³⁹.

As a result, community takes this issue as a bench mark to react against the newly intended Aminew Ceramic Factory. As it noted from the discussion made with residents who live around this factory, the Factory under construction even though its first plan to construct ceramic factory is aborted, due to the community reaction against its future pollutant emissions to the environment.

4.3.2. Ineffective Pollution Control Environmental Standards

The Environmental pollution control proclamation empowers the EFCCC and RECCA to set environmental standards.¹⁴⁰ However, the proclamation empowers regional states to adopt more stringent environmental standards and does not permit less stringent standards than primarily set

¹³⁶ Ibid

¹³⁷ Ibid

¹³⁸ Confidential Interview held with Koticha Kebele residents on March 23/2021

¹³⁹ Interview held with Ato Teshome Deme, Team leader of environmental supervision and monitoring of government developmental project at Dukam Environmental Protection, Forest, and Climate Change Authority on March 16/2021 in his office.

¹⁴⁰ Art. 6(1) of Proc.No.300/2002

by federal Authority. As it is noted from the proc. No.300/2002, different standards set on the discharge of effluents, air quality, maximum allowable noise level, the type and amount of substances which can be disposed into soil, generation, handling, storage, treatment, and disposal of wastes.¹⁴¹

As a report obtained from the Dukam EFCCA indicated particulate matters (PM2.5) emission to air at selected areas such as, Koticha 85ug/m³, Mandelo areas (34ug/m³), Misrak hotel gate areas (226ug/m³), Eastern Industry Zone (4ug/m³), Getechew Almad (38ug/m³) areas is measured based on in comparison with standard set for particulate matters (65ug/m³).¹⁴² Therefore, according to this report PM2.5 which is released to the urban environment from Koticha and Misrak hotel gate is greater than the standard set i.e.65ug/m³. In addition, senior expert of Dukam EFCCA also stated that particulate matters may be directly emitted from construction sites, factories, and uncovered road, dust emission and other related pollutants activities. Thus, according to expert's evaluation, this small particulate matters have capacity to be inhaled with air and also stacked to food. As a report indicated particulate matters that suspended in the air was above standard for some areas of Dukam city while other were below standard.

The report obtained from Dukam City EFCCA that indicated particulate matters released to the air was summarized in Table.

Place selected	(PM.2.5)ug/m ³	Standard set /65ug/m ³	Result
Koticha kebele areas	85ug/m ³ (measured at spot)	65ug/m ³	Above
Getachew Almad areas	38ug/m ³	65ug/m ³	Below
Misrak hotel gate areas	226ug/m ³	65ug/m ³	Above
Eastern Industry Zone	4ug/m ³	65ug/m ³	Below
Mendalo areas	34ug/m ³	65ug/m ³	Below

Table: Summarized by Researcher

¹⁴¹ Ibid Art.6(1)(a-e)

¹⁴² በአሮሚያ ብሔራዊ ክልላዊ መንግስት ዱካም ከተማ የአየር ብክለት ሁኔታ ክትትል መረጃ መስብሰብ ቅጽ.(Annexed report).

As it is noted from the discussion made with the authority on the identified areas the Dukam EFCCA did not take any corrective measure to minimize dust particulate matters that released to the air.

Provisional Standards for Industrial Pollution Control (PSIPC) also set standards for different sources of pollution. For instance, noise standards to be applied for people live or work. The sensitivity of noise or sound pollution is very high during daytime than at night time. The PSIPC set noise or sound pollution standards that permissible for industrial areas 75dB (A) daytime and 70dB (A) night, commercial areas 65dB (A) daytime and 55dB (A) night time and residential areas(55dB(A) daytime.¹⁴³

4.3.3. Lack of Public Consultation

According to the FDRE Constitution people or residents have the rights to be consulted on the projects designed for the development before the commencement of the project. The people have right to know the adverse impacts and positive advantage of the projects that has been undertaken for public interests within their locality. Like other Oromia regional state cities, Dukam has many projects that require EIA before commencement of the project. As acknowledged in both FDRE Constitution, ONRS Constitution and other environmental legislations, local communities have the right to be consulted on the development project concerning about its negative and positive impacts on the environment and health.

Therefore, to examine whether the residents are consulted on the issues of projects of development questionnaires distributed to the residents and government institutions such as Construction Authorities, Oromia Environment, Forest and Climate Change Authority (OEFCC), Dukam City EFCCA, Oromia Urban Development and Housing Bureau, Municipal Office and stakeholders, different outcomes were found.

As key informant from Dukam EFCCA confirmed EIA is conducted almost for all projects except for the projects that have minimum or did not have adverse social and environmental impacts on the health of the residents.¹⁴⁴ According to Oromia EIA Regulation No. 219/2013

¹⁴³ Provisional Standards for Industrial Pollution Control

¹⁴⁴ Mohammed Nugusie interview (n131 above)

certain projects are not subject to EIA as their degree of polluting environment is minimal or non-existence. However, the main problem associated with project owners is failure to include genuine public opinion on the projects' positive and negative impacts. The owner of the project and consultant do not want to discuss in detail on the activities of the projects with public to minimize the risk of pollution that comes from construction industries, before the commencement of the project at pre-construction phase and operation phase.

The constitution guarantees the right to access to information for every citizen, but this right is hardly enforced in practice as the owners of the project in the city would like to maintain goodwill of his/her project and to earn public win only by presenting positive aspect of the project. The key respondent in advance mention the reason why proponent of project and its consultant often did not want to conduct public consultation and participation because they fear public reaction concerning environmental issues, to reduce expenses for public consultation and public officials rent seeking behavior also open way for them not to obey the law¹⁴⁵

The respondent strongly criticize Oromia regional EIA proclamation depending on his experience with regard to the public consultation about environmental problems, as it is conducted merely for the sake of formality, they listed the name of individuals and attached them.¹⁴⁶ According to his view, constitutionally granted right to participate in decision making process is violated due to the proponent of projects and consultants mischief of the appropriate public authority in order to attain their economic deep desire. Therefore, right of public participation in decision making process is very minimum or none. The role of Public participation in the reviews of the EIA is specified under environmental guideline, but it is rarely implemented according to the spirit of the law.

¹⁴⁵ *Ibid*

¹⁴⁶ *Ibid*

4.3.4. Weak Implementation of EIA

As stated under chapter three, an EIA is a mandatory legal requirement before the commencement of new construction projects. EIA is primarily conducted to assess the positive or negative impact of the proposed project on the environment in pretext of social and economic development aspect.

The respondent suggested that to reduce environmental degradation, building construction stakeholders must adopt full EIA document and other pertinent regulations for protection of environment.¹⁴⁷ The respondent further mentioned that all projects of construction do not expected to go through EIA procedures before commencement of construction activities, it depends on the social adverse and environmental impacts; for instance, projects like coble stone, road network within the city, sewerage line are believed to cause minimum environmental pollution.¹⁴⁸ The other basic problems noted from discussion made with respondents, the proponents are not willing to do EIA for their projects as they think it will take time and expose them to extra expenses, sometime the government does not force them in order to encourage investment, however, the law requires EIA as mandatory legal requirement for certain projects to minimize environmental evil that happen at early phase of construction and operation stage.¹⁴⁹

The researcher identified that from the view of all the key respondents, EIA does not conducted for government development project. Thus, it is a clear violation of environmental proclamation which stated that any project has to be undergone EIA to reduce potential environmental pollution. Therefore, due to this weak implementation of EIA, construction activities largely cause loss of soil, affect agricultural land and cause air pollution. For instance, Aminew Textile and Garment Factory which is under construction along highway to Addis Ababa generated construction waste and remove it to the farmers' agricultural land.¹⁵⁰ The other respondents from the Municipal Office affirmed that a number of proponents of the project failed to implement the

¹⁴⁷ Interview held with Ato Kelbessa Bekumu, Expert of Environmental Social and Impact Assessment, at Oromia EFCCA, on May 4/2021

¹⁴⁸ Ibid

¹⁴⁹ Ibid

¹⁵⁰ Interview held with Ato Jemal Abdurrahman, expert of urban cleanliness and Greenery Development, at Dukam Municipal Office, on April 14/2021.

proposed mitigation measures in EIA and environmental management plan prior to commencement of the construction phase.¹⁵¹

4.3.5. No Integrated Construction and Demolition Waste Disposal Management

According to proc. No.513/2007 construction and demolition waste is a part of municipal solid waste. Dukam Municipal Office senior environmentalist expert said that ‘construction and demolition activities can produce blowing clouds’ of dust which has capacity to cover resident home and the farmers’ crops within vicinity.’¹⁵² In fact, there is no integrated system that backed by environmentally sound technology and converts construction remains and demolition wastes into useful economic benefits and creates job opportunity for unemployment. For instance, recycling of aggregate materials that obtained from construction and demolition waste may be used to reduce demand-supply problems for the construction roads and building materials¹⁵³.

Key respondents reply with regarding to recycling technology, many building components or solid wastes can be recycled where market access and technology exist. For instance, concrete and bricks are often recycled into aggregate or new asphalt and concrete products as new construction materials- even wood can be recycled into other engineered wood products like furniture and compost.¹⁵⁴ The C&D waste did not sorted at source according to the nature of material that can be recycled for better economic benefits by proponent of the project that undertakes construction in Dukam city.

As it is noted from the questionnaires filled by pertinent sectors and stakeholders, most of them reply that there is no integrated technological system that convert solid waste or C&D wastes into economical useful products. As inferred from discussions made with different stakeholders show, it is uncommon to see concrete and masonry waste that can be recycled by sorting at source, crushing and sieving into recycled aggregate for other building purpose. For instance, the

¹⁵¹ Interview held with Ato Beleta Tugo, Team Leader of Urban Cleanliness and Greenery Development, at Dukam Municipality Office, on March 20/2021.

¹⁵² Interview held with Ato Feyissa Rusha Dube, at Dukam Municipal Office, Plant Nursery Site Supervisor, on May 6/2021.

¹⁵³ Dr. S.R.Shukla et.al (n91 above), P.57

¹⁵⁴ Tesfaye Tariku (n 134 above)

Hong Kong, construction industry used methods, such as waste management plans, reducing and recycling C&D wastes, by giving in house training on environmental management and legal measures on environmental protection.¹⁵⁵

The proclamation¹⁵⁶ empowered cities: `

“Urban administrations may themselves undertake or into agreements with construction enterprises to refill solid waste disposal sites or quarry pits with pebbles or gravel from demolished building or with excavated earth.”

Dukam town has power to manage construction and demolition waste either by itself or get into agreement with construction enterprises that generated construction and demolition wastes to refill solid waste disposal site or quarry pit with pebbles or gravels from building demolition and excavated soils. According to the proclamation any person has to obtain a permit from the concerned body of an urban administration prior to his engagement in collection and transportation, use or disposal of solid wastes.¹⁵⁷

An expert of Municipal’s parking development affirmed there is no legally valid sanitary landfill which is used as solid waste disposal site including construction and demolition waste since it is a part of MSW.¹⁵⁸ He further suggested that many project owners made agreement with Municipal Office to manage waste or pollution generated by projects during construction and demolishing of building and to dispose it at a place designated by city administration for this purpose. Many project or factory owners entered contract with Municipality to refill solid waste disposal site or quarry, with remains of construction activities and demolition waste, but they fail to respect and implement their contract as agreed.

The proclamation prohibit contractor not obtain construction permits unless he ensure the existence of environmentally sound disposal of construction debris or excavated soil. However,

¹⁵⁵ Bakhtiar, Shen and Misnan(n67 above),

¹⁵⁶ Art.12(1), Proc.No.513/2007

¹⁵⁷ Ibid

¹⁵⁸ Interview held with Ato Desta Anuma Karo, expert of Dukam Municipal Parking Development, on March 15/2021

in reality many residential houses, public or private factories were under construction without fulfilling this precondition. Therefore, the power of city administration is so sweeping in law but it is not sweeping in practice. It can be noted from discussion made with different professionals (legal officers, engineers and other stakeholders, the city administration itself violated its own proclamation due to failure to implement. In the city administration residential construction were not entered into agreement with Municipal Office to manage its construction debris or excavated soil.

The Proclamation¹⁵⁹ stipulated that:

“Construction permits shall be issued only when the building contractor deposits a legally valid bond or any other instrument to ensure the environmentally sound disposal of construction debris or excavated earth.”

Furthermore, Urban Administration has duty to ensure the availability of adequate facility for environmentally sound solid waste management, prior to the commencement of any construction of residential houses.¹⁶⁰ Recently much residential housing is under construction by association at peri urban areas to fulfill the demand of housing for residents and government civil servants according to ONRS regulation No.181/2016. Therefore, during their construction phase in case of residential building, Dukam Municipal Office does not facility any mechanisms to control construction waste. They deposited any building rubbish in open land space or along road side and they are leaving on the farmers’ land, because the Municipal Office failed to facility environmentally sound management of remains of construction activities.

For instance, Ethiopia Building Proclamation No.624/2009 also state that “all precaution measures which should be taken for new building shall also be taken during any alteration, repair, extension or demolition work carried on an old building.”¹⁶¹

¹⁵⁹ Proclamation No. 513/2007 Art.12 (2)

¹⁶⁰ Ibid Art.12(3)

¹⁶¹ Art. 25(2),(3),of Proc.No.624/2009

4.3.6. Construction Dust Emission

Dukam town is like other Ethiopian towns need urban expansion in order to fulfill socio economic demand of the communities reside in the city and living at peri urban areas. Now day, several construction activities are underway whether it is public or private construction to enhance economic development of the country as a general. According to selected study area which is known by its local name “Dhadachaa” kebele, the types of project under construction include Association Residential Houses, Aminew Textile and Garment Factory.

As key respondent from Housing Administration and Development Team Leader states that the building of residential house by association generates construction waste and dust emissions due to drilling, sawing, chipping and grinding concrete can produce inhalable crystalline silica which causes health hazard on-site workers.¹⁶² To strength this argument the government of China bears responsibility of controlling contractors to improve environmental performance in construction industries.¹⁶³ Furthermore, China strictly forbids field production of concrete and mortar to minimize its environmental evils and health problems of their urban dwellers.

Other senior expert from Dukam Construction Authority affirmed that construction of any project can cause dust emission to the surround environment is inevitable.¹⁶⁴ He also said that at construction phase mixer sound, excavators, vehicles at the site have capacity to generate huge dust which can disturb neighborhood at the construction site.¹⁶⁵ For instance, researcher understood from discussion made with respondents at the construction phase various waste can be generated like waste water from construction, waste water generated from cleaning of machinery and rainwater runoff at construction site have capacity to roll dusts, soil, sand, rocks and other materials such as cements, petrol and gas, paint etc. cause pollution to the quality of underground water. However, the extent to which the project is affecting community depends on the type, nature and size of the project under construction in the vicinity of urban dwellers.

¹⁶² Interview held with Team Leader of Housing Administration and Development Dukam Municipal Administration, on March 27/2021, not willing to disclose his name.

¹⁶³ Jinding Xing et.al (n 85 above)

¹⁶⁴ Interview held on April 16/2021 with Ato Damxew, senior Civil Engineer at Dukam Construction Authority at his Office.

¹⁶⁵ Ibid

There are noise and dust emissions associated with residential unit construction and camp site development close to urban settlements near the project sites. Directorate of Environmental Supervision and Monitoring mention that residential construction and government developmental projects are not subject to EIA in practice even though the law says any project shall pass through the EIA to minimize the risk that occurred during commencement of early construction phase and operation stage.¹⁶⁶ The head of this directorate strongly confirmed that construction activities pollution and demolition result in dust emissions, however, the environmental supervisors fail to monitor the enforcement of proposed mitigation measures to cover dust impacts occurred during land clearing and leveling.

¹⁶⁶ Mohammed Nugusie (n131 above)

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1. Conclusion

The global environment has gradually deteriorated at an alarming rate by deleteriously affecting the natural resources base and processes upon which all life depends. The environment is widely accepted by many scholars as the cumulative of natural, social and cultural conditions that have impact on the life of an individual or community. Specifically, construction industry is as one of basic economic sector that transforms different natural resources into an important physical economic and social infrastructure for sustainable development. Therefore, like any other economic sectors, construction industry can cause environmental pollution, especially during the proposed project is under construction and when certain building is demolished.

The physical environment has been affected by construction industries since it exploits natural resources. The basic businesses in which the private sectors have been engaged in the city include textile industry, leather industry, medical tools and other chemical materials. Moreover, in the city administration several companies are starting or extending business factories such as ceramic industry, steel factory, pulp and paper industry etc.

Basically, the construction industries greatly contribute to deforestation, noise, dust, chemical pollution, soil erosion and physical disruption. The dwellers that live around or close to the construction or industrial sites have been affected by noise, dust and unpleasant smell released from the construction activities like excavation and pile driving. Therefore, construction industry is not always environmental friend.

It is very difficult to come up with the exact scope of environmental rights as it suffered from definitional ambiguity and vagueness which are the first objections that is raised against the adoption of the right to environment. The most frequently used formulation is the 'right to a healthy environment' and those who use it believes that the term 'healthy' is sufficiently versatile to be used to describe all environmental ills.

The Aarhus Convention which adopted in 1998 incorporates provisions that are vital for procedural environmental justice. According to Bende, even though the ‘Aarhus procedural rights’ such as access to information, participation and access to justice are not in themselves a universal remedy, they have a significant implication in resolving global environmental problems, especially in developing countries.

The construction industry policy aims at crafting a favorable environment for the development of a vibrant, efficient, and sustainable local industry that meets the demands for its services to support sustainable. Federal Building Proclamation No.624/2009 stated that no person shall, at any time, during course of or after demolition of building leave it in a condition dangerous to the public or any adjoining property. It is inferred from the phrase ‘all precaution measures’, the waste of building or demolition should not damage the environment and health of urban residents. Under the same proclamation, other provision states the way in which construction materials or residues accumulated around a construction site, ordered by urban administration or designated organ by written notice to the owner of the site to remove residues within the time specified in the notice.

Moreover, construction industry is criticized for its being releasing huge amounts of pollutant particulate dust emission to the atmosphere from construction works. Construction dust originates from various kind of onsite activities like excavation, drilling, bulk material transportation, loading and unloading, open-air material storage, concrete and mortar making, cutting and filling and movement of vehicles.

Like other countries, Ethiopia has been adopted environmental laws that influenced by global environmental awareness that came on the wake of the Stockholm Conference in 1992. Similarly, the WCED and UNCED specifically called on donors to assist developing countries to establish the national legal infrastructure for environmental protection. There are a range of environmental legal instruments at both national and regional level that have objective to protect the environment to conform to sustainable development.

Some of the environmental regulatory instruments are the FDRE Constitution of 1995, Environmental Policy of Ethiopian 1997, Proclamation No.300/2002, and Proclamation

No.299/2002, Building Proclamation No.624/2009 and others pertinent laws at regional level consulted regarding to urban environmental pollution by construction industries.

Finally, as it is noted from the discussion made with various experts, officials and stakeholders, the leading challenges to urban environmental pollution by construction industries is originated from the absence of public consultation, lack integrated environmental laws, weak implementation of EIA before the commencement of the proposed project to manage expected construction waste at early stage, weak enforcement of mitigation mechanisms to control dust, sound, light pollution etc. the construction sites and lack of specific standards.

5.2. Recommendation

Based on the discussion and findings, the writer would like to recommend the possible solution that has to be reconsidered by the appropriate public Authorities and stakeholders.

- It should be noted that construction industries are more likely to cause urban environmental pollution to the residents who live in the vicinity where construction activities underway. There should be specific standards and a guideline that detailed mitigation mechanisms of construction pollution, which is environmentally sound to minimize the environmental pollution during the project is under construction.
- Contractors should implement noise reduction and mitigation strategies in consultation with the urban residents close to the project under construction to minimize noise and vibration caused by operation of construction machinery.
- Municipal Office should balance interest for the development of construction industries with a vital importance of the environment for the existence of mankind and other biodiversity. For instance, vegetation removed during specific project construction should be planted to sustain ecosystem.
- Construction of public projects is not often going through the EIA procedures, but in practice they have an adverse social and environmental impact on the health of urban dwellers near the sites. It should be noted that public participation in decision making

process is highly considered as a procedure to secure a sound environmental protection.

- There should be integrated management of construction and demolition of waste to enhance the culture of using wastes for better economic opportunities by re-using, sorting and recycling of waste disposal. Furthermore, the REFCCA must be issued stringent policy, plan, strategies and programs to put into place environmentally sound mechanisms that assist cities to use construction pollution/wastes for economic benefits through re-using, recycling and sorting mechanisms.
- The Oromia REFCCA should enact regulation and directives for the proper implementation of the Proclamation No.513/2007 in accordance with their existing situations.
- The Municipal Office should enforce solid waste proclamation against proponents of project that leave/dispose cart way and excavated soil on open land space and along road side, that can be resulted in soil and water contamination and deterioration of land scape.
- The types of construction projects that need to go through ESIA in the urban sector should be identified by specific guidelines by REFCCA using environmental management plan.
- Dukam city EFCCA should work out seriously on the enforcement of EIA by giving due attention for vital importance of multi professionals, independent and neutral consultant, genuine public participation and strong cooperation of concerned government sectors. As discussed in the chapter four, these broad concepts were not implemented in practice due to lack of strong commitment on behalf of public officials and absence of coordination from concerned sectors and stakeholders, for instances, they considered environmental issues as the only concern of regional EFCCA and respective Authority at woreda or city levels. The Investment Commission/ Office is primarily focus on how to encourage investment and issue investment permit/ license and Construction Authority also issue construction

permits. Therefore, on the protection of environment these sectors are not so coordinated in practice.

- The city should construct sanitary landfills.
- The Dukam City EFCCA should conduct regular follow up and monitoring activities of the proponent project under construction its compliance with environmental law.

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Appendix

Appendix I: Description of Field Works

Part I. List of Key the Informants Interviewees' Reports.

1. Ato Teshome Deme, Team leader of Environmental Supervision and Monitoring of government development project at Dukam City EFCCA, on April 16/2021 in his office.
2. Ato Mohammed Nugusie, Senior expert of Environmental law Compliance Supervision and Monitoring at Dukam City EFCCA on May 10, 2021
3. Ato Gedisa, Team Leader of Urban Cleanliness and Greenery Development, Oromia Urban Development and Housing Bureau, on May 3/2021
4. Hingabu Hordefa (PhD), Expert of Urban Greenery at Oromia Urban Development and Housing Bureau on May 5/2021
5. Ato Beleta Tugo, Team Leader of Urban Cleanliness and Greenery Development, at Dukam Municipality Office, on May 2/2021
6. Ato Desta Anuma Karo, expert of Dukam Municipal Parking Development, on March 15/2021
7. Ato Feyissa Rusha Dube, expert of Plant Nursery Site Supervisor, at Dukam Municipal Office on May 6/2021
8. Ato Jemal Abdurrahman, expert of Urban Cleanliness and Greenery Development at Dukam Municipal Office, on April 14/2021
9. Ato Bekele Wakjira Directorate of Supervision and Monitoring of Environmental laws Compliance at Oromia EPFCCA, on March 14/2021
10. Ato Kelbessa Bekumu, Expert of ESIA at Oromia EFCCA, on May 4/2021
11. Ato Tesfaye Tariku, Civil Engineer at Dukam Construction Authority, on March 23/2021
12. Ato Damxew, senior Civil Engineer at Dukam Construction Authority, on April 16/2021 at his office
13. Ato Demisew Belay, Senior Construction Engineer at Oromia Regional State, Economic sectors Cluster Coordinator, on February 24/2021

Appendix II: Research Tools

Part II: Questionnaires to be filled by Government officials, Experts and Stakeholders.

1. Does your organization have legal frameworks (proclamation, Regulation, and Directive) to control environmental pollution or wastes that arise from the construction industries? Yes, ___ No, ___ if your reply is yes, list them down. _____
2. Do you think that these laws are implemented in practice to control urban environmental pollution by construction industries? Yes, ___ No, ___if your answer is No. state your reasons. _____
3. As to your organization, are there clear, uniform and specific guidelines of law on the management of construction industries' pollution/waste? Yes, ___ No, ___please, reason out. _____
4. Do you believe that it is necessary to have special laws that govern urban environmental pollution by construction industries? Yes No please, justify your position for both yes or no preferences _____
5. Do you think environmental legislations equally applicable to construction industries pollution? Yes, ___ No, ___ Please, reason out. _____
6. Do you think construction pollution /waste is a part of municipal solid waste? Yes, ___ No, ___ Please, discuss it. _____
7. Do you think there is a gap of law that regulates urban environmental pollution by construction industries' activities at the sites? Yes, ___ No, ___ substantiate your stand, whether it is in favour or against. _____
8. Do you think that all construction projects go through EIA procedures before commencement of construction to minimize pollution to urban environment? Yes, ___ No, ___please, provide reasons for your choice.

9. Does your organization have installed recycling technology that used to convert construction waste into useful economic benefits? Yes, ___ No, ___ Please, would you discuss it sufficiently?
10. Do you think that a polluter pay principle (PPP) implemented to oblige the owner of construction industry site to manage its pollution? Yes, ___ No___ If your answer is positive, how? _____
11. What are typical sources of urban environmental pollutions by construction industries or activities, specifically from the construction industry sites? Please, would you discuss it sufficiently?_____
12. Do you think that dust, noise and light pollution released from construction industries have potential impacts on the urban residents' healthy and safety? Yes, ___ No, ___ Please, would you justify it sufficiently?_____
13. Do residents who live near the construction industries site; present a grievance to your organization in relation to urban environmental pollution? Yes, ___ No, ___ Please, reason out._____
14. What are basic challenges of construction industries in relation to environmental pollution in Dukam city Administration? Please, discuss the issues in detail._____
15. What are the responsibility of the organs entitled with power to administer construction industry to avert environmental pollution arise from construction activities?_____

Questions for interview

Part II: Interview Questions for Residents

- Is there any construction industry close to your neighbor where you live? Does it pose/cause any pollution to urban environment?
- Do you have access to information, participation and access to justice in case of urban environmental pollution caused by construction activities?
- Do you think dust, noise and light pollution discharged from construction industry, cause health and safety problem to the public?
- If you have any grievance against polluters, is there any administrative procedure to present your case? Is it practically enforceable?

Part III: Interview Questions for Administrative officials and relevant Stakeholders.

- Is there any challenge in managing pollution/waste released from the construction industry activities to the urban environment in your organization?
- Do you think both environmental laws at federal and regional state are implemented to settle the problems of environmental pollution arise from construction industries?
- What are the mechanisms used to manage construction industry pollution or any wastes according to your organization?
- Do you believe that there is a clear, uniform and specific guideline to curb pollution released by construction industries in your organization?
- What is your idea regarding the implementation of existing guidelines and standard of environmental laws?